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# Golden Eagle Banding in the South Saskatchewan River Valley

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**O**f all Saskatchewan bird species, none is more time consuming and yet more exhilarating for the bander than the Golden Eagle. It may take an entire day to visit only three nests. We may have to walk in three miles from the last point reached by a four-wheel drive vehicle, 120 to 180 miles from Saskatoon.

In the early years, my helpers and I descended a rope hand-over-hand, but in 1973 we purchased proper climbing gear with harness, carabiner and descendeur, which now allow a very safe descent. Safety helmets must be worn because rocks may be dislodged from the clay cliff above.

The clay cliff faces are usually sheer but rarely more than 150 feet high. The nest may be anywhere from 4 feet from the top to 10 feet from the bottom, but commonly they are nearer the top.

Although on an average there is one nest every 10 miles along the river, there is a high failure rate, many failures being due to desertion. Nests may slump down the clay cliffs in extreme weather, either after heavy rains or when the clay cracks in very dry years. In 1966, one pair deserted after a heavy end-of-April snowstorm covered the two eggs on the ledge just before hatching was expected;

there had been 1 egg present on 27 March and 2 eggs on 26 April. Twice we have found eagles incubating added eggs in mid-June. Nest-finding is rarely complete and our coverage has been somewhat inconsistent from year to year. We rely heavily on neighboring ranchers to watch known sites for us. In 1984 we encountered for the first time, Golden Eagles nesting successfully in trees. The two pairs were 8 and 20 miles from the river.

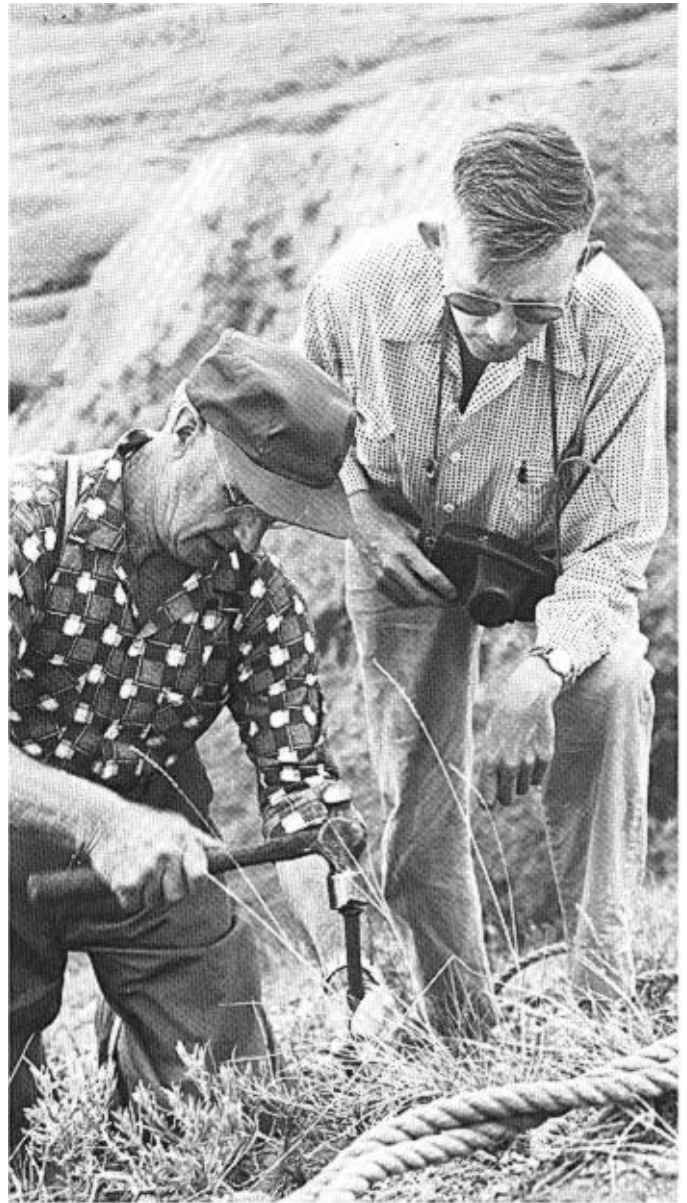
On three occasions, we have hired a fixed-wing aircraft to survey for new cliff nest sites after previous nests were deserted, but a four-seater Cessna 172 is too fast a plane for optimal surveying. One must fly at the crack of dawn before rising warm air currents make flying along the valley edge dangerous. The search is made more difficult by the fact that pairs have alternate nest sites.

In one deep divided coulee, where the two branches split and rejoin, eagles have occupied at least six different nest sites. Elsewhere a nest site on a pinnacle at the point of a clay outcrop was permanently lost after slumping occurred. A single banding visit in June has never caused desertion, but in 1959 a single eaglet died of exposure when a photographer's blind above the nest kept both adults away for 24 hours.



There has been surprisingly little change in eagle breeding success since the completion of Gardiner Dam, which formed Lake Diefenbaker, flooding the valley West beyond Highway 4, in 1967. The striking exception is the most easterly nest on Hamilton's ranch across from Riverhurst. Although with three exceptions the Golden Eagles have continued to nest on the same cliff face, up a coulee from the original river, the waters of the new lake are now so high that there are often several boatloads of fishermen immediately below the eagle's nest. Success at the Hamilton site has drastically decreased since. In the four years from 1960 through 1964 (I was not in the province in 1962), seven young were fledged in four years, a success rate well above average. Since 1965, only four young have been raised, one each in 1968, 1972, 1974 and 1980, although a pair of eagles has been present every summer except for 1978 when they did not appear. In 1965, 1967, 1970, 1971 and 1976, eggs were observed in early April by Lorne Hamilton, yet no young were fledged. Twice the eagles have tried a new site about a mile distant, but failed after a month of incubation: in 1977 in a tree and in 1979 on a tiny cliff on a tributary coulee only 100 yards from a side-road. In 1982, the nest at the usual site slumped into the waters below.

I have had birders come from as far as Boston for the purpose of accompanying me on the Golden Eagle-Prairie Falcon banding weekend. Because banding is the priority, we stop the vehicle otherwise only for "lifers." One poor fellow was taken to several Golden Eagle nests, only one of which was active. There the adult must have slipped away on our approach for none of us even caught a glimpse of her. He had to wait until another year and another locality before he could add a Golden Eagle to his life list, since he felt a dependent nestling did not count!



Only once did an adult eagle stay on her nest momentarily to allow her to be photographed with her nestling. No doubt such wariness has contributed to the survival of this once-persecuted species.

On several occasions the local rancher has noted 2 eggs or 2 young in the nest prior to our mid-June visit to band the single remaining young. We presume that fratricide occurs in about 50% of nests in this area, since half the pairs raise only 1 young to maturity. For such a long-lived bird, production of 1 young per successful nest per year should be more than adequate.

I used butt-end bands through the 1974 season, placing these on 38 eaglets, with 4 recoveries. From 1971 through 1974 I used size 9 lock-on bands on 22 eaglets, with 1 recovery. Since 1975 I have used rivet bands on 52 eaglets with only 3 recoveries to date. Such numbers are too small to give any indication of relative band retention. All but two of my recoveries were within a year of banding, one at 2½ years and one presumably at close to 4 years when "band only" was found by someone who did not sign their name or give any address (Table 1).

**Table 1.**

DATE BANDED	BAND NUMBER	TYPE BAND	WHERE BANDED	HOW KILLED	WHEN RECOVERED	WHERE RECOVERED
Jul. 1/63	509-26039	B	SE Demaine 504-1070	FD	Oct. 6/63	Oakes, S.D. 460-0980
Jun. 6/64	509-31916	B	E. Stewart Valley 503-1073	FD	Jan. 67	Whitehorse, S.D. 451-1005
Jun. 24/66	509-23902	B	E. Stewart Valley 503-1073	Band	Jun. 70	W. Fort Worth, TX 324-0974
Jun. 11/67	509-14996	B	E. Stewart Valley 503-1073	FD	Jun. 23/68	S. Lucky Lake 505-1070
Jun. 22/74	599-09527	L	Stewart Valley 503-1074	FD	Nov. 26/74	Meade Lake, KS 371-1002
Jun. 22/75	629-00978	R	SE Beechy 504-1071	Trap	Jan. 27/76	N. Waldeck 502-1073
Jun. 22/75	629-00980	R	S Kyle 504-1080	FD	Sept. 75	S. Kyle 504-1080
Jun. 20/76	629-00986	R	S Beechy 504-1072	FD	Apr. 77	NW Campo, CO 370-1024

B = butt-end band

L = lockon band

R = rivet band

FD = found dead



One hopes there is a better prospect of a longevity record someday with the rivet bands, to compensate for all the difficulties involved in their application. Most Golden Eagle nests are very solid and will hold one or two men but if there is a rift developing between the nest and the cliff we dare not put any weight on the nest. Then banding from the rope perch is more difficult. We often must use heavy vice-grip pliers to line up the opposing holes to receive the rivet.

This is easy in the clean air up a Bald Eagle tree, but can be extremely difficult when the rivet tool malfunctions in the thick cloud of dust sometimes occasioned by rappelling down a clay cliff. On one occasion in 1981 we had to use a butt-end band when the rivet tool gave out, and on other occasions we have driven up to 50 miles to a hardware store to get a replacement tool, which also ceased to function before two bands could be applied. On average, we purchase one rivet tool each season.

**Table 2. Golden Eagle banding in South Saskatchewan River Valley.**

YEAR	FAILED NESTS	NESTS WITH 1 YOUNG	NESTS WITH 2 YOUNG	NESTS WITH 3 YOUNG	TOTAL YOUNG BANDED
1906	0	0	1	0	2
1961	0	2	1	0	4
1962	—	—	—	—	—
1963	0	2	1	0	4
1964	1	2	1	0	4
1965	3	0	1	0	2
1966	2	0	2	0	4
1967	1	1	2	0	5
1968	0	3	2	0	7
1969	1	1	1	0	3
1970	1	1	1	0	3
1971	1	1	3	0	7
1972	3	4	1	0	6
1973	2	2	2	0	6
1974	4	1	1	0	3
1975	2	2	2	0	6
1976	1	0	3	0	6
1977	1	3	2	0	7
1978	3	2	2	0	6
1979	6	1	0	0	1
1980	2	5	1	0	7
1981	1	3	2	1	10
1982	4	1	0	0	1
1983	2	1	1	0	3
1984	2	2	2	0	6
	<b>43</b>	<b>40</b>	<b>35</b>	<b>1</b>	<b>113</b>

Nests were washed down the cliff in 1964, 1965 (twice), 1971, 1974, 1979, and 1982.

In 1978 and 1979 one pair was still incubating addled eggs when visited in June.

No doubt there were more than 43 nest failures since some eagles may have deserted early in incubation before they were observed by a rancher or bander.

The small number of recoveries already seems to show quite well the wintering range of our eagles. Cold alone is not sufficient to send them south and if food supplies are good some Golden Eagles remain in southern Saskatchewan all winter. Others obviously go to South Dakota (October and January), to Kansas (late November), to Colorado (April) and even to Fort Worth, Texas (Table 1).

Of the 8 recoveries, one was caught in a weasel or muskrat trap. The "band only" report, considering the unusual circumstances of the reporting, may well have been of an eagle shot from an airplane. Of the six found dead, one was below a windmill, thought to have been killed by lightning. Another, dead on the valley floor immediately below an active nest, was a yearling that had been banded 17 miles west and 9 miles south of where it was recovered; we suspect the nesting eagles may have killed the year-old bird that intruded so close to their nest.

An adult eagle, which had been banded by another bander, was found dead beneath the power line at the Hamilton side, dead for perhaps a week, on 11 October 1980. It had been attending young successfully raised nearby that year. From its size at death it was thought to be a male although Harry Armbruster thought it was a female when he banded it on 10 June 1977, south-west of Eston, Saskatchewan, about 100 miles west of the recovery site.

Since 1967 a tally of visible food in the nest at the time of the banding visit has been recorded. The most sumptuous larder was encountered on 20 June 1970 when one nest contained the greater parts of 2 adult and 2 young White-tailed Jackrabbits, 4 ducks and 1 Long-tailed Weasel. Another nest on 20 June 1976 contained 2 Jackrabbits, 1 Richardson's Ground Squirrel, 1 Burrowing Owl, 1 young Black-billed Magpie and a good-sized fish. These eagles were certainly good providers for on a visit of 27 May when the young were a week old, there were 11 assorted ducks in the nest.

Over the years, portions of 39 jackrabbits were encountered; at one time the rabbit was found uneaten except for the head. There have been 19 ducks, 1 downy Mallard duckling and 1 uneaten duck egg, no doubt in the oviduct of an adult female duck when brought to the nest. The ducks included 11 Mallards, 2 Lesser Scaup and 1 American Wigeon. There were also American Crows twice, adult Black-billed Magpies twice, and a young magpie once. Other mammals included 8 Richardson's Ground Squirrels, a newborn Mule Deer fawn, the foot of a small Pronghorn, and a Muskrat.

### Literature cited

Houston, C.S. and Wylie, K.A. 1985. Golden eagles nest successfully in trees. *Blue Jay* 43:(1.31-13.3)

(Photo credits to Dr. Hans S. Dommasch) (Western)

